

F. M. PATTERSON.
VALVE.
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1,107,342.

Patented Aug. 18, 1914.

Fig. 1.

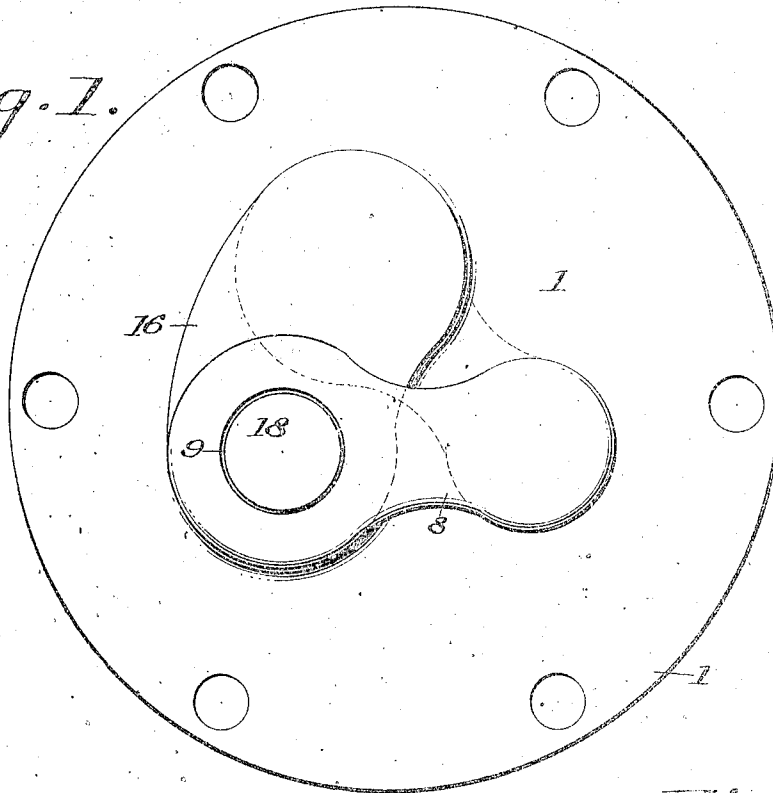
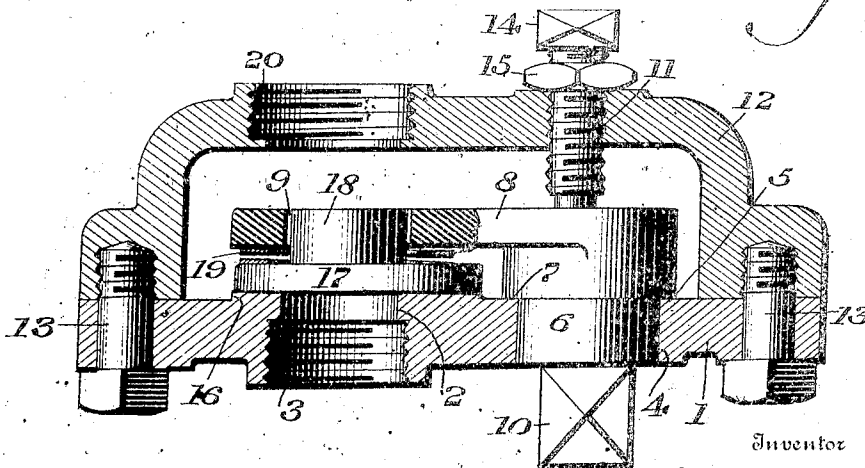


Fig. 2.



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VALVE.

107,342.

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To all whom it may concern:

Be it known that I, FRANKLIN M. PATTERSON, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Valve, of which the following is a specification.

My invention relates to a new and useful valve and consists in providing a valve operated by a lever or key which is suitably held in position and which can expand without affecting the valve.

It further consists in providing a raised valve seat or face for the valve so that the same can be easily faced.

It further consists in providing separate means for holding the valve against its seat and for holding the lever or key against its seat.

Figure 1 represents a plan view of the valve with the upper portion of the casing removed. Fig. 2 represents a vertical sectional view thereof with the casing in position.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings. I have found in practice, in order to construct a successfully operative valve of the slide valve type, that it is necessary to have the same seated in such a manner that a tight joint exists between the valve and its seat and that the means for operating the same can expand without affecting the valve and in addition that it is essential that the valve and operating means are properly seated, in order to obviate the use of stuffing boxes.

In the present instance, I have shown one form for carrying out my invention, although it will be evident that other instrumentalities may be employed for effecting the same result.

By the construction shown, it will be apparent that the various parts may be replaced singly without affecting the other parts, should any of the parts be broken or unduly worn.

1 designates a plate forming the lower portion of the casing, which is provided with an outlet opening 2, which is threaded at 3 to have engagement with the discharge pipe, not shown, which is suitably threaded to engage with the said thread 3.

4 designates a second opening in said plate 1 which is adapted to receive the rounded

portion of a stem 6, which closely fits said opening 4 and which has a shoulder 5 thereon seated upon the faced portion 7 of the plate 1 forming a joint seat for said shoulder 5, which thus serves as a valve for closing the opening 4.

8 designates a key or lever which is integral with or secured to the stem 6 and which is provided with a suitable opening 9 for purposes hereinafter described. The stem 6 is provided with a squared end 10, which projects beyond the plate 1, so that the said stem and key or lever 8 can be operated. Bearing upon said stem 6 is a set screw 11 which passes through the cover or upper portion 12 of the casing, which latter may be secured in any desired manner to said plate 1, in the present instance by bolts or screws 13. The set screw 11 is provided with the head 14 for operating the same and a jam nut 15 serves to hold said screw in any desired position.

16 designates a raised valve seat formed on the upper face of the plate 1 around the opening 2 and extending therefrom, as best understood from Fig. 1, in order that the valve 17 will always be in proper engagement with said seat 16 in its movement. The said valve 17, as shown in Fig. 2, is preferably of disk form and has a projection or lug 18 thereon adapted to be seated in the opening 9 in the lever 8 and between said lever 8 and the upper portion of the valve 17 is situated a spring 19 which serves to hold the valve 17 firmly upon its seat. The top of the cover or casing 12 is provided with a threaded opening 20 for engagement with a pipe, not shown, for connection with a suitable source of supply.

It will be noted that the openings 2 and 20 are substantially in alinement. In order to open or close the valve a suitable tool is applied to the squared end of the stem 6, so that said valve is operated from one position to the other, it being understood that the valve, as before stated, is in close engagement with the raised seat 16 in all its positions and that when it is closing the opening no escape of the fluid is permitted there-through, by reason of the close joint caused by the pressure exerted by the spring 19 tending to hold the valve in position and by reason of the pressure of the set screw 11 upon the stem 6, the shoulder 5 on the stem 6 forms a joint with the seat 7 on the casing

and prevents escape therethrough, so that by reason of the construction just described, the use of stuffing boxes is obviated both at the valve 17 and the stem 6, since the set screw keeps a tight metal face between the shoulder 5 and the seat 7. Should the valve 17 wear, the spring 19 compensates therefor and makes a tight joint. By reason of the raised valve face, it will be apparent that should the same wear, it can be faced with a file quickly and expeditiously. It will be seen that while the parts are dependent upon each other for operation, should any breakage of the various parts occur, the same can be quickly and easily replaced without replacing the other parts, that is to say, should an accident happen to the valve 17, it can be replaced without the necessity of replacing any of the other parts.

It will be noted that the steam or pressure entering the opening 20 will be directed immediately against the portion 18 of the valve 17 tending at all times to seat the same, or in other words, to make a more perfect joint between the valve 17 and its seat and this can more readily be accomplished by reason of the fact that the said valve 17 can move independently of the lever 8, which as before stated, is firmly held in position by the set screw 11. It will be further noted that as the valve 17 is operated or moved by the lever 8 the pressure can still continue to act upon said valve in addition to the pressure exerted by the spring 19 and that the more the valve is operated the truer the joint between the valve and the seat will become, since the wear at all times on both surfaces will be even. Attention is also called to the fact that the pressure exerted by the set screw 11, in order to cause a perfect joint between the shoulder 7 and its seat, can be adjusted from the exterior of the casing at any time without disturbing the parts.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is:—

In a device of the character stated, a valve casing having inlet and outlet ports in alignment and the outlet port having a flat guiding valve seat surface at right angles to the alignment of the ports and the valve casing also having a stem opening to one side of said inlet and outlet ports and of a maximum diameter at its inner end, said casing being provided with a flat annular bearing surface bounding the inner end of the said stem opening and extending at right angles to the length of said opening, combined with a valve device for controlling the outlet port consisting of a valve piece having an extended flat surface and laterally movable over the guiding valve seat surface of the outlet port, a valve operating device for operating the valve piece comprising a laterally movable swinging arm having its free end connected with the valve piece for moving it parallel to and permitting free movement of it to and from the guiding valve seat surface of the outlet port, and an operating stem for moving the arm extending through the stem opening and rotatable therein, said stem having on its inner end an annular flat bearing surface forming a tight joint with the inner flat annular bearing surface of the valve casing bounding the inner end of the stem opening, and means arranged within the casing and supported thereby in substantial alignment with the axis of the stem for pressing the annular bearing surface of said stem in constant contact with the inner flat annular bearing surface of the valve casing bounding the stem opening.

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Witnesses:

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